REMARKS

Claims 3 – 8, 10, 12, 13, 15, and 19 are currently pending in the application.

35 U.S.C. § 112

Claims 3 – 8, 10, 12, 13, 15, and 19 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Applicants respectfully traverse the rejection of these claims and respectfully submit that these claims are in condition for allowance.

Each of independent claims 12, 15, and 19 recites a component made from a composite of polymer or ceramic material. The component comprises X-ray absorbing reinforcing fibers distributed throughout the composite (i.e., throughout the polymer or ceramic material). As explained at page 6, lines 19 – 20 of the originally-filed translation of the corresponding international application, the present invention involves a composite consisting of polymer or ceramic material with integrated reinforcing elements, e.g., fibers or fibrous parts. At least a small percentage of fibers or fibrous parts are made out of a material having a higher X-ray absorption in the polymer or ceramic material. See page 6, lines 25 – 27. Such a configuration provides visibility control of the composite component during X-ray diagnostics. Applicants contend it is clear that the composite comprises a polymer or ceramic material and reinforcing fibers.

Regarding claim 3, and as explained at page 3, lines 32 – 34 of the originally-filed translation, in one design of the present invention the composite is prefabricated as a rod material consisting of thermoplastic materials with carbon fibers and fibers made out of a material with a high X-ray absorption. When read as a whole with its independent claim 19, Applicants contend it is clear that the carbon fibers of claim 3 are reinforcing fibers, but they are not X-ray absorbing reinforcing fibers.

Regarding claim 4, and as explained at page 4, lines 5 – 7 of the originally-filed translation, in one embodiment the composite consists of carbon fiber-reinforced PAEK (poly-aryl-ether-ketone) and a percentage of fibers made out of a material with a high X-ray absorption. When read as a whole with its independent claim 19, Applicants contend it is clear that the PAEK of claim 4 is a component of the composite (i.e., claim 4 recites the composite *further* comprises PAEK).

Regarding claim 6, and as explained at page 4, lines 5 – 34 of the originally-filed translation, the fibers are to be enveloped on the surface by the matrix material. When read as a whole with its independent claim 19, Applicants contend it is clear that the matrix material is the polymer or ceramic material.

Accordingly, Applicants respectfully submit that claims 3, 4, 6, 12, 15, and 19 are in condition for allowance. Applicants further respectfully submit that because claims 5, 7, 8, 10, and 13 are dependent upon allowable claim 19, claims 5, 7, 8, 10,

and 13 should also be allowed at least as dependent upon an allowable base claim. Reconsideration of these claims is respectfully requested.

35 U.S.C. § 102

Claims 3, 5 – 8, 10, 12, 13, 15, and 19 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,255,478 to Crane. Applicants respectfully traverse the rejection of these claims and respectfully submit that these claims are patentable over the art of record for at least the reasons set forth below.

Independent claim 12 recites features that are neither disclosed nor suggested by Crane, namely:

> A component made from a composite...comprising: X-ray absorbing reinforcing fibers distributed throughout the composite, wherein *an orientation of the X-ray absorbing reinforcing fibers is tailored to a shape and application of the component (1, 18) in a defined manner...*; and carbon fibers, wherein *a total fiber percentage in the composite remains constant over a length or width of the component, which changes a ratio of carbon fibers (6) to X-ray absorbing fibers (6).*

Applicants' invention provides a component made from a composite that has a predictable progression and predictable quantity and orientation of X-ray absorbing reinforcing fibers. See page 4, lines 26 – 29 of the originally-filed translation. The X-ray absorbing reinforcing fibers are tailored to the shape and

application of the component. Page 4, line 30. The total fiber percentage of carbon fibers and X-ray absorbing reinforcing fibers in the composite remains constant over the component's length or width, but this changes the ratio of carbon fibers to X-ray absorbing reinforcing fibers, depending on the application requirement. Page 5, lines 15 – 18.

In contrast, Crane neither discloses nor suggests an orientation of X-ray absorbing reinforcing fibers tailored to a shape and application of a component, and a constant total fiber percentage in the composite which changes a ratio of carbon fibers to X-ray absorbing fibers. More specifically, Crane discloses a composite structure comprised of plies of fiber-reinforced tape segments in which the fibers are embedded in a resin matrix so as to be parallel to the edges of the tape. See column 2, lines 62 – 64 of Crane. As illustrated in Fig. 1, a boron fiber (14) is positioned along and between the abutting edges of the tape segments. Column 3, lines 13 – 14. The tape segments (18) of each ply are arranged in a 45°, - 45° pattern and, since the boron fibers are laid along edges of the tape segments, they are likewise arranged in a 45°, - 45° pattern. Column 3, lines 29 – 37. Importantly, the arrangement of boron fibers is such that no single boron fiber is positioned vertically over another boron fiber. Column 3, lines 38 – 40. In other words, the structure of Crane requires a very specific configuration, and nowhere does Crane disclose or suggest an orientation of X-ray absorbing reinforcing fibers *tailored to* a

shape and application of a component. Similarly, Crane neither discloses nor suggests a constant total fiber percentage in the composite which changes a ratio of carbon fibers to X-ray absorbing fibers. Thus, Crane fails to recite each and every feature of Applicants' claimed invention.

It is because Applicants' invention comprises an orientation of X-ray absorbing reinforcing fibers tailored to a shape and application of a component, and a constant total fiber percentage in the composite which changes a ratio of carbon fibers to X-ray absorbing fibers that the following advantages are achieved. Tailoring the orientation of the X-ray absorbing reinforcing fibers makes it possible to graduate the visibility of the component, i.e., of an implant. See page 4, lines 31 – 33 of the originally-filed translation. Depending on the segments of an implant where a stronger, weaker, or even no X-ray visibility is desired, it is possible to control the application and used quantity of fibers made out of X-ray opaque materials. Page 4, line 33 – page 5, line 2. Hence, the ability to concentrate or accumulate these fibers is of particular importance. Page 5, lines 2 – 3. Because the total fiber percentage in the composite remains constant (which changes a ratio of carbon fibers to X-ray absorbing fibers), the visibility can be deliberately controlled for an optimal X-ray diagnostics, without impairing the strength values of the component. Page 5, lines 15 – 20.

Thus, because independent claim 12 recites features that are neither disclosed nor suggested by Crane, Applicants respectfully submit that claim 12 should be allowed. Reconsideration of this claim is respectfully requested.

Independent claims 15 and 19, while not identical to claim 12, recite features similar to claim 12. Specifically, among other things, each of claims 15 and 19 recites that an orientation of X-ray absorbing reinforcing fibers is tailored to a shape and application of a component, and that the concentration of the X-ray absorbing reinforcing fibers is varied in different areas of the component. Accordingly, Applicants respectfully submit that claims 15 and 19 are also patentable over Crane for at least the reasons set forth above with respect to claim 12. Applicants further respectfully submit that because claims 3 – 8, 10, and 13 are dependent upon allowable claim 19, claims 3 – 8, 10, and 13 should also be allowed at least as dependent upon an allowable base claim. Reconsideration of these claims is respectfully requested.

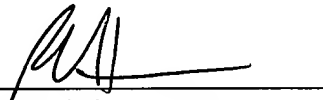
Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing Remarks, Applicants respectfully submit that the present application, including claims 3 – 8, 10, 12, 13, 15, and 19, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Magerl et al.

By 
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